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EXAMINER

FUJITA, KATRINA R

ART UNIT	PAPER NUMBER
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2609

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/05/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/772,510

Applicant(s)

MICHELSSON, DETLEF

Examiner

Katrina Fujita

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS; WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 February 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. ____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 02/05/2004.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: Numeral 16 (figure 3).

Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

3. The disclosure is objected to because of the following informalities:

Page 1, paragraph 05, "image flied" should be --image field--. This appears to be a typographical error.

Page 2, paragraph 06, "comparisons optical images" should be --comparisons of optical images--. This appears to be a typographical error.

Appropriate correction is required.

Claim Suggestions

4. In claim 26, "for a computer stores" should be replaced with --for computer storage--.

Claim Objections

5. Claims 1, 8, 13, 17 and 26 are objected to because of the following informalities:

Regarding **claim 1**, in line 1, "plurality features" should be --plurality of features--.
In line 3, "image flied" should be --image field--.

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Regarding **claim 8**, in line 1, "claim1" should be --claim 1--. In line 2, "acquire a microscopic" should be --acquire microscopic--.

Regarding **claim 13**, in line 1, "at lest one" should be --at least one--.

Regarding **claim 17**, in line 4, "image flied" should be --image field--.

Regarding **claim 26**, in line 5, "image flied" should be --image field--.

Appropriate correction is required.

6. The following is a quotation of 37 CFR 1.75(a):

The specification must conclude with a claim particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention or discovery.

7. Claims 6, 7, 12, 14, 16, 22, and 23 are objected to under 37 CFR 1.75(a), as failing to particularly point out and distinctly claim the subject matter which application regards as his invention or discovery.

Claim 6 recites "a SAW" in line 1. It is unclear whether this is intended to be the same as or different from the "SAW" recited in line 2 of claim 1. The following will be assumed for examination purposes: "a the SAW".

Claim 7 recites "a SAW" in line 2. It is unclear whether this is intended to be the same as or different from the "SAW" recited in line 2 of claim 1. The following will be assumed for examination purposes: "a the SAW". Furthermore, claim 7 recites "a SAW segment" in line 3. It is unclear whether this is intended to be the same as or different from the "imaged SAW segment" recited in line 8 of claim 1. The following will be assumed for examination purposes: "a an imaged SAW segment".

Claim 12 lacks antecedent basis for "the diaphragm" at line 2. The following will be assumed for examination purposes: "~~the~~ a diaphragm".

Claim 14 lacks antecedent basis for "the logical SAW segments" at line 2. The following will be assumed for examination purposes: "the logical imaged SAW segments".

Claim 16 recites "a SAW" in line 2. It is unclear whether this is intended to be the same as or different from the "SAW" recited in line 2 of claim 13. The following will be assumed for examination purposes: "a the SAW".

Claim 22 recites "a SAW" in line 1. It is unclear whether this is intended to be the same as or different from the "SAW" recited in line 3 of claim 17. The following will be assumed for examination purposes: "a the SAW".

Claim 23 recites "a SAW" in line 2. It is unclear whether this is intended to be the same as or different from the "SAW" recited in line 3 of claim 17. The following will be assumed for examination purposes: "a the SAW". Furthermore, claim 23 recites "a SAW segment" in line 3. It is unclear whether this is intended to be the same as or different from the "imaged SAW segment" recited in line 9 of claim 17. The following will be assumed for examination purposes: "a an imaged SAW segment".

Claim Rejections - 35 USC § 112

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

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The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claim 3, 4, 11, 14, 19, and 20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. See MPEP § 2173.05(c). Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949).

In the present instance, **claims 3 and 19** recite the broad recitation "logical SAW segments" of any size, and the claims also recite "logical SAW segments" of "identical size" which is the narrower statement of the range/limitation.

In the present instance, **claim 11** recites the broad recitation "relative motion of the wafer", and the claim also recites "continuous" relative motion of the wafer, which is the narrower statement of the range/limitation.

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Regarding **claims 4, 14 and 20**, the phrase "preferably" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Claim Rejections - 35 USC § 101

10. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

The USPTO "Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility" (Official Gazette notice of 22 November 2005), Annex IV, reads as follows:

Descriptive material can be characterized as either "functional descriptive material" or "nonfunctional descriptive material." In this context, "functional descriptive material" consists of data structures and computer programs which impart functionality when employed as a computer component. (The definition of "data structure" is "a physical or logical relationship among data elements, designed to support specific data manipulation functions." The New IEEE Standard Dictionary of Electrical and Electronics Terms 308 (5th ed. 1993).) "Nonfunctional descriptive material" includes but is not limited to music, literary works and a compilation or mere arrangement of data.

When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized. Compare *In re Lowry*, 32 F.3d 1579, 1583-84, 32 USPQ2d 1031, 1035 (Fed. Cir. 1994) (claim to data structure stored on a computer readable medium that increases computer efficiency held statutory) and *Warmerdam*, 33 F.3d at 1360-61, 31 USPQ2d at 1759 (claim to computer having a specific data structure stored in memory held statutory product-by-process claim) with *Warmerdam*, 33 F.3d at 1361, 31 USPQ2d at 1760 (claim to a data structure per se held nonstatutory).

In contrast, a claimed computer-readable medium encoded with a computer program is a computer element which defines structural and functional interrelationships between the computer program and the rest of the computer which permit the computer program's functionality to be realized, and is thus statutory. See *Lowry*, 32 F.3d at 1583-84, 32 USPQ2d at 1035.

11. Claims 17-26 are rejected under 35 U.S.C. 101 because the claimed invention is

directed to non-statutory subject matter as follows.

Claims 17-26 define a program of instructions embodying functional descriptive material. However, the claims do not define a computer-readable medium or memory and is thus non-statutory for that reason (i.e., "When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized" – Guidelines Annex IV). That is, the scope of the presently claimed program of instructions can range from paper on which the program is written, to a program simply contemplated and memorized by a person. The examiner suggests amending the claims to embody the program on "computer-readable medium" or equivalent in order to make the claims statutory. Any amendment to the claims should be commensurate with its corresponding disclosure.

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claim 1, 2, 3, 5, 8, 11, 13, 15, 17, 18, 19, 21, 24 and 26 rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Shibata et al. (US 2002/0089664) and Park (US 6,432,800).

Regarding **claims 1, 8, 11, 13, 17, 24 and 26**, Shibata discloses a method and apparatus for analyzing at least one wafer which has a plurality features that were generated with a SAW ("system for inspection and observation of fine pattern defects, foreign particles and the like that is typically performed in manufacturing process of semiconductors" at paragraph 0001, line 2) comprising:

an image sensor ("image sensor" at paragraph 0023, line 4; figure 5, numeral 154) to acquire a plurality of images of the at least one wafer ("obtaining a plurality of images" at paragraph 0007, line 2), wherein the image sensor defines an image field ("field of view of an optical system 15" at paragraph 0023, line 2) and a relative motion of the wafer with respect to the image sensor occurs ("Z-stage 10, a θ -stage 11, an X-stage 12 and a Y-stage 13" at paragraph 0022, line 3; "wafer 1 is scanned in a field of view of an optical system 15" at paragraph 0023, line 2);

a memory region in which the plurality of images of the wafer, acquired with the image sensor, are storable ("data server" at paragraph 0023, line 8; figure 5, numeral 31; "delay memory" at paragraph 0041, line 9; figure 9, numeral 62);

means for initializing in a learning phase the image field of the image sensor ("region to acquire and image for conditioning...is selected on the display of the operating computer" at paragraph 0036, line 11; figure 5, numeral 35, which is equivalent to applicant's apparatus for selecting the image fields), wherein the image

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field of the image sensor is divided into SAW-segment-imaging image field segments ("detected image is divided into regions of a predetermined size" at paragraph 0044, line 2; figure 11) in such a way that after a definable interval of acquired images, a repetition of an identical allocation (after obtaining the initial segmentation, the same allocation can be applied for the remainder of the wafer since "a similar pattern is formed in every die" at paragraph 0032, line 2) of imaged SAW segments ("die can be divided into a plurality of segments" at paragraph 0039, line 4) in image field segments occurs ("image region that is acquired for conditioning" at paragraph 0039, line 1 will contain the aforementioned SAW segments); and

a processing unit ("image processing section" at paragraph 0041, line 1; figure 9, numeral 30) for carrying out comparison operations ("comparing between images of adjacent chips or cells" at paragraph 0041, line 10) in such a way that in, the image field segments of images that have an identical allocation of image field segments to imaged SAW segments are compared with one another or with a specific master ("reference digital signal" at paragraph 0041, line 12).

Shibata does not teach moving a camera over the wafer to acquire microscopic or macroscopic images.

Park discloses a system in the same field of endeavor of wafer defect inspection ("inspecting flaws in semiconductor wafers" at col. 1, line 8) wherein Park teaches moving a camera over a wafer ("camera 11 with the light source 15 can be configured to linearly move" at col. 4, line 43; figure 3, numerals 11, 15, and 40; "camera 11 is a

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digital line scan camera” at col. 4, line 8) to acquire microscopic or macroscopic images (images acquired by the camera are either microscopic or macroscopic).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify the optical system of Shibata using the camera system taught by Park as described above, “to effect the relative movement of the wafer” (Park at col. 4, line 44).

Regarding **claims 2, 3, 18 and 19**, Shibata teaches a method wherein during initializing the SAW is broken into logical SAW segments (“die can be divided into a plurality of segments” at paragraph 0039, line 4) and the logical SAW segments are allocated to image field segments (“image region that is acquired for conditioning” at paragraph 0039, line 1 will contain the aforementioned SAW segments) in such way that an identical allocation of logical SAW segments to image field segments occurs at a definable travel interval or image interval (after obtaining the initial segmentation, the same allocation can be applied for the remainder of the wafer since “a similar pattern is formed in every die” at paragraph 0032, line 2).

Regarding **claims 5, 15 and 21**, Shibata teaches a method and apparatus wherein a comparison of physically adjacent image field segments is performed (“comparing between images of adjacent chips or cells” at paragraph 0041, line 10) on the basis of a metric (in this case, the next segment).

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14. Claims 4 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Shibata and Park as applied to claims 2 and 19 above, and further in view of Kuwabara (US 6,643,394).

Shibata and Park teach the elements of claim 1 as described in the 103 rejection above.

The Shibata and Park combination does not teach a method and apparatus wherein the logical SAW segments and the image field segments are each indexed, and there is allocated to the image field segments a combination of SAW segment index and image field index, on the basis of which a determination is made of the image field segments to be compared, those image field segments which have an identical combination of SAW segment index and image field segment index being compared with each other.

Kuwabara discloses a method and apparatus in the same field of endeavor of wafer defect inspection wherein the dies on a wafer are separated into scanning areas (figures 4 and 5; the image field is defined by the scanning width and each chip is divided into segments) and subsequently indexed ("Sm-n" (m, n=1, 2, . . .)" at col. 5, line 41; figure 5).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify the initialization means of Shibata and Park using the indexing taught by Kuwabara as described above, to enable comparisons between a segment and two similar segments to improve the likelihood of detecting any defects.

15. Claims 6, 12, 16 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Shibata and Park as applied to claim 11 above, and further in view of Yonezawa (US 6,222,624).

Regarding **claims 6, 16 and 22**, Shibata and Park teach the elements of claims 1, 13 and 17 as described in the 103 rejection above.

The Shibata and Park combination do not teach a method and apparatus wherein offsets of the SAW are learned during initializing and are taken into account in determining the allocation.

Yonezawa discloses a method and apparatus in the same field of endeavor of wafer defect inspection ("apparatus and...method for inspecting a defect on the surface of an object to be inspected, such as a semiconductor wafer" at col. 1, line 6) wherein offsets of a SAW are taken into account during image comparison ("the wafer is offset by a one-chip portion" at col. 7, line 63; figures 2a and 2c).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify the initialization means of Shibata and Park using the positional correlation taught by Yonezawa as described above, to effectively image the wafer such that corresponding patterns can be compared.

Regarding **claim 12**, Shibata and Park teach the elements of claim 11 as described in the 103 rejection above.

The Shibata and Park combination do not teach a method wherein an image is acquired by way of a flash that is triggered, with a diaphragm open, as a function of the relative position of the wafer.

Yonezawa discloses a method wherein an image is acquired ("image data from the CCD camera 21 is fetched into the image processor" at col. 7, line 52) by way of a flash that is triggered ("turns on the illuminant 2 to illuminate the wafer" at col. 7, line 49; "Subsequently, the controller 33 turns off the illuminant 2" at col. 7, line 56), with the diaphragm open ("diaphragm" at col. 6., line 60; figure 1, numeral 23), as a function of the relative position of the wafer ("controller 33 moves the X-Y stage" at col. 7, line 63; "Subsequently, images of the wafer 8 illuminated by the illuminants 2 and 11 are respectively picked up by the CCD camera" at col. 8, line 2).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify the optical system of Shibata and Park using the flash and diaphragm taught by Yonezawa as described above, to eliminate image smearing that may occur in the case that an area camera is used.

16. Claims 7 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Shibata and Park as applied to claims 1 and 17 above, and further in view of Bishop et al. (US 5,119,434).

Shibata and Park teach the elements of claims 1 and 17 as described in the 103 rejections above.

The Shibata and Park combination does not teach a method and apparatus wherein at least one region that is invalid and that is blanked out upon comparison of the image field segments can be defined within the SAW or an imaged SAW segment, in which context the validity can depend on the position of the SAW on a wafer.

Bishop discloses a system in the same field of endeavor of wafer inspection ("system block diagrams of FIGS. 15 and 16, useful for wafer and similar inspection" at col. 8, line 57) wherein at least one region that is invalid and that is blanked out upon comparison of the image field segments ("If a "Don't Care" coordinate is intercepted, it is marked as an invalid region and no defects will be flagged in these regions" at col. 3, line 60; figure 15, numeral H).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify the comparison operations of Shibata and Park using the region blanking taught by Bishop as described above, to ensure that unnecessary comparisons are not made.

17. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Shibata and Park as applied to claim 1 above, and further in view of Park.

Shibata and Park teach the elements of claim 1 as described in the 103 rejection above.

The Shibata and Park combination does not teach illuminating a wafer with a continuous light source.

Park also teaches illuminating the wafer with a continuous light source ("A three phase fluorescent bulb is advantageously used as the lamp" at col. 4, line 19; since "the

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camera is configured to continuously capture the images" at col. 1, line 45, illumination is continuous as well).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify the optical system of Shibata and Park using the light source taught by Park as described above, to enable the camera to produce images that are beneficial to determining the existence of defects on the wafers.

18. Claim 10 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Shibata and Park as applied to claims 1 and 17 above, and further in view of Lin et al. (US 6,292,260).

Shibata and Park teach the elements of claims 1 and 17 as described in the 103 rejection.

The Shibata and Park combination does not teach a method wherein an area camera is used, which can acquire microscopic or macroscopic images.

Lin discloses a method in the same field of endeavor of wafer defect inspection ("system and method of optically inspecting photoresist structures on the surface of semiconductor wafer dice" at col. 5, line 37) wherein an area camera is used ("area-scan camera" at col. 6, line 13; figure 2, numeral 120), which can acquire microscopic or macroscopic images (images acquired by the camera are either microscopic or macroscopic).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify the optical system of Shibata and Park using the camera taught

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by Lin as described above, to be able to contain more wafer area in each image and subsequently accommodate a bigger range of SAW sizes.

19. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Shibata and Park as applied to claim 13 above, and further in view of Kuwabara and Ramakrishna et al. ("File Organization...", ACM Transactions on Database Systems).

Shibata and Park teach the elements of claim 13 as described in the 103 rejection above.

The Shibata and Park combination does not teach a method and apparatus wherein the memory region is managed, by means of an array or a hash function, in such a way that the imaged SAW segments and the image field segments are each indexed, and there is allocated to the image field segments a combination of SAW segment index and image field index, on the basis of which a determination is made of the image field segments to be compared, those image field segments which have an identical combination of SAW segment index and image field segment index being compared with each other.

Kuwabara teaches the elements of claims 4 and 20 as described in the 103 rejection above, which correspond to the indexing requirements of claim 14.

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify the initialization means of Shibata and Park using the indexing

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taught by Kuwabara as described above, to enable comparisons between a segment and two similar segments to improve the likelihood of detecting any defects.

The Shibata, Park and Kuwabara combination does not teach a method and apparatus wherein the memory region is managed, by means of an array or a hash function.

Ramakrishna discloses a method wherein data files are organized using has a hashing technique ("file organization based on perfect hashing" at section 1, paragraph 2, line 2).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to manage the memory region of Shibata, Park and Kuwabara using the file organization taught by Ramakrishna as described above, so that "any record can be retrieved in a single disk access" (Ramakrishna at section 1, paragraph 2, line 3), thereby allowing for a more efficient file access.

Conclusion

20. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 5,864,394, US 20020027653, US 20030133604, and US 20020172411 are each pertinent as teaching image-based wafer inspection systems.


21. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Katrina Fujita whose telephone number is (571) 270-1574. The examiner can normally be reached on M-Th 8-5:30pm, F 8-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian P. Werner can be reached on (571) 272-7401. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Katrina Fujita
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BRIAN WERNER
SUPERVISORY PATENT EXAMINER